COST OF MARKETING EGGS AND LABOR OUTPUT OF SELECTED COOPERATIVES

PART II - North Central States

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Joseph G. Knapp, Administrator

The Farmer Cooperative Service conducts research studies and service activities of assistance to farmers in connection with cooperatives engaged in marketing farm products, purchasing farm supplies, and supplying business services. The work of the Service relates to problems of management, organization, policies, merchandising, product quality, costs, efficiency, financing, and membership.

The Service publishes the results of such studies; confers and advises with officials of farmer cooperatives; and works with educational agencies, cooperatives, and others in the dissemination of information relating to cooperative principles and practices.

This study was conducted under authority of the Agricultural Marketing Act of 1946 (RMA, Title II).

Contents

Summary

This report is part of a renewed and expanded area study similar to one made in 1950-51. The original study had three major objectives: (1) To obtain information on costs and labor requirements of the several operations in egg handling, (2) to determine and measure the factors affecting costs, and (3) to measure and employ the findings by applying them to actual operating conditions.

This report covers the first of these objectives for nine farmer cooperatives in six North Central States. It essentially presents comparative statistics of (1) total costs, (2) direct unit costs of 12 individual operations by associations, (3) indirect (overhead) costs by associations, (4) costs by type of packs, and (5) output a man-hour for the nine cooperatives.

The annual volume of eggs handled by the individual associations ranged from 39,300 to 205,000 cases, averaged 101,659 cases, and totalled nearly 915,000 cases for the nine associations.

Labor costs, direct and indirect, constituted 37 percent of the total cost. Materials were next with 30 percent. Truck costs were 24 percent of the total. Other costs made up the remaining 9 percent.

The analysis revealed wide variations in direct costs a unit and in output a man-hour for most of the 12 operations among the nine associations studied. No association uniformly had the lowest or highest labor costs or outputs in all operations. The 12 operations were: collecting, receiving, candling, cartoning, packing cartoned eggs, coopering cases, stacking, loading out, delivering, shell cleaning, shell treating, and egg breaking.

Direct labor costs for collecting eggs averaged 22.9 cents a case for eight associations and ranged from 18.1 to 28.5 cents a case. Output a man-hour for collecting averaged seven cases and ranged from 5.1 to 9 cases. Truck costs for assembling eggs ranged from 7.2 to 23.7 cents a case and averaged 14.6 cents.

Direct labor costs for receiving eggs into plants averaged 2.5 cents and ranged from 1.7 to 4.9 cents a case. Labor output ranged from 32.1 to 92 cases a man-hour and averaged nearly 65 cases.

For candling eggs, the direct labor cost averaged 47.5 cents a case for nine associations and ranged from 34.8 to 71.7 cents. Labor output averaged 2.5 cases a man-hour and ranged from 1.5 to 4 cases.

The direct labor cost of cartoning eggs which includes candling the eggs and placing them in cartons averaged 41 cents a case for seven associations. The range was from 29.6 to 47.9 cents a case. The average labor output was 2.9 cases a man-hour and ranged from 2.2 to 4.9 cases.

The average direct labor cost of packing cartoned eggs was 7.8 cents a case and ranged from 5.5 to 13.3 cents. Output a man-hour averaged 15.4 cases and ranged from 8.9 to 22.5 cases.

The average direct labor cost of coopering egg cases was 2.1 cents a case with a range from 0.5 to 5.3 cents. Labor output averaged 89 cases a man-hour and ranged from 22 to 301 cases.

Stacking eggs in the holding room cost an average of 2.1 cents a case and varied from 0.8 to 4.6 cents, while labor output averaged 94 cases a man-hour with a range of 141 cases--from 34 to 175 cases.

The labor cost of loading out eggs averaged only 1.4 cents, with a range from 0.5 to 2 cents. Labor output a man-hour averaged 146 cases and ranged from 79 to 266 cases.

Direct labor cost for delivering eggs to buyers ranged from 4.4 to 33.2 cents a case among three associations delivering eggs in their own trucks. The average cost was 14.1 cents. Truck expense averaged 13.5 cents a case and ranged from 7.4 to 23.4 cents. The average cost of labor and truck expense totaled 27.6 cents a case.

The one association shell treating eggs apart from the candling line had a direct labor cost of 5.5 cents a case and a labor output of 16.5 cases a man-hour.

The direct labor cost of shell cleaning eggs averaged 11.9 cents a case for five associations, with a range from 6.4 to 21.9 cents. More than 11 cases of eggs were cleaned a man-hour, with a range from 5.3 to 16.1 cases.

The direct labor cost of egg breaking was 94.3 cents for a 30 dozen case equivalent. Cases broken a man-hour averaged 2.1.

The cost of packing materials for the loose pack of eggs averaged 52.5 cents a case and ranged from 39.2 to 70 cents. For the cartoned pack this cost averaged nearly $1.02 a case and ranged from 86.2 cents to $1.27 cents. Oil for shell treating averaged 1.4 cents a case for three associations. Materials for shell cleaning averaged 0.8 cent a case for five associations. Containers for broken eggs cost 41.8 cents a 30-dozen case equivalent for one association. Cases and filler-flats used only in collecting eggs cost four associations an average of 8.1 cents a case.

The total of all costs, direct and indirect, of handling eggs averaged 8.8 cents a dozen for consumer-grade loose eggs, packed in cases. For consumer-grade, cartoned eggs, packed in cases, costs averaged 10.1 cents a dozen.

Findings of this study point up the wide variations in labor costs among associations--as much as 37 cents a case for candling. This is more than a 100 percent variation for this high cost operation. In the low cost operation of loading out eggs, one association's cost was five times

that of another. One important factor in candling labor output and per unit cost was the type of equipment used. These and other findings suggest the possibilities of reducing costs.

Although this report does not contain an analysis of factors affecting costs, the unit costs presented can be used by the cooperating organizations and other egg-handling plants to compare with their own costs. Plants with costs out of line are then in a position to take steps to find out why their costs are comparatively high and, if possible, make the necessary corrections to reduce them. However, plants not included in this study which desire to make cost and output comparisons will need to make sure that the method of arriving at their costs is comparable with that of this study; otherwise, the comparisons will not be valid.

Cost of Marketing Eggs and Labor Output of Selected Cooperatives Part II – North Central States

by Harry E. Ratcliffe

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Cost of marketing eggs is of interest and importance to producers, management of egg-handling plants, and consumers. Low handling costs by cooperatives usually mean higher returns to producers or lower costs to consumers, or both.

Comparison of costs with those of other organizations enables management of one association to determine whether its costs are high or low. If they are high, steps may be taken to determine the cause and then to make changes and improvements in operations, plant layout, or other factors.

This report contains information to make such comparisons possible.

Background of Study

The study is a renewal of a similar study made in 1950-51 and covers a wider area. That study had three major objectives: (1) To obtain information and data on costs and labor requirements of the several operations or steps in handling eggs for determining averages, ranges, and yardsticks; (2) to determine and measure the factors affecting costs and other measures of relative efficiency, and (3) to find and apply methods, skills, techniques, and other means of increasing efficiency in individual operations and organizations.

The benefits of cost reductions could eventually affect all egg-handling agencies, whether coopera-

Note: Appreciation is expressed to the managers and employees of the associations studied for their cooperation and assistance; to Edwin E. Drewniak of the Poultry Branch, Farmer Cooperative Service, for assistance with the field work and compilation of data; and to John J. Scanlan, Chief, Poultry Branch, who made substantial contributions in planning and conducting the study.

tives or not. The previous studies[1] included nine associations in five Northeastern States and 16 associations in the seven North Central States. The present study of 23 associations covers 6 in the Far West in addition to eight associations in the Northeastern and nine in the North Central States.

Scope and Purpose

This is a regional report of the data obtained during 1957-58 from the nine associations in the North Central States. It covers the first objective of the earlier study and includes (1) total costs, (2) direct costs of handling eggs by specific operations, (3) total indirect costs, (4) labor output per man-hour, and (5) costs by type of pack.

It is primarily a comparative statistical summary consisting of 25 cost and labor output tables covering the phases mentioned above. It presents direct costs and labor output by associations and individual operations, indirect costs by associations but not by individual operations, and costs by type of pack by associations.

The purpose of this regional report is to make available as quickly as possible information for use of cooperatives and others, particularly in the North Central area, in comparing costs and labor efficiency.

A similar report[2] has been published on the Northeastern Area and one on the Western Area is being prepared. Later a final analytical combined report will be prepared covering the 23 associations in the three areas.

Organizations Selected

Cooperatives included in the study were selected because they were (1) doing an effective job of marketing eggs, (2) either candling or cartoning a large portion of eggs received, (3) handling relatively large volumes compared to other associations in their areas, and (4) using newer type equipment.

Two associations each were selected in Minnesota, South Dakota, and Kansas, and one each in Iowa, Wisconsin, and Michigan.

One association is a specialized egg cooperative. Another handles about equal amounts of eggs and poultry and farm supplies. The other seven are creameries. In addition to dairy products and eggs, two custom dress poultry in locker plants and one handles some fowl for members.

Each association has been given a code letter in this report as the information and data were obtained on a confidential basis with the understanding that the names or addresses of the cooperating associations would not be divulged.

The nine cooperatives received a total of 914,932 cases of eggs, or an average of 101,659 cases an association, during the year ending with the 2-week period of the study. The smallest in volume received slightly less than 39,300 cases and the largest, slightly more than 205,000 cases.

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[1] Bradford, Henry W., Ratcliffe, Harry E., and Scanlan, John J. Costs and Labor Efficiency of Specialized Egg Marketing Cooperatives in the Northeast. Farm Credit Admin., U. S. Dept. of Agr. Misc. Rpt. 158. Feb. 1952.

Ratcliffe, Harry E. Bradford, Henry W., and Scanlan, John J. Cost of Handling Eggs by Selected Cooperatives in the North Central States. Farm Credit Admin., U. S. Dept. of Agr. Misc. Rpt. 162. May 1952.

These publications are out of print but copies are available for reference in most agricultural college and university libraries.

[2] Ratcliffe, Harry E. Cost of Marketing Eggs and Labor Output of Selected Cooperatives. Part I--Northeast. Gen. Rpt. 59. Farmer Cooperative Service, U. S. Dept. of Agr. May 1959.

Period Covered

An intensive study of the operations of each association was made over a period of 2 consecutive weeks. Because of limitations of time and personnel, it was not possible to visit all associations during comparable periods in their seasonal volume cycle. Consequently, the volume handled by the associations during the period visited was below the average for the year for some associations and above for other associations and not necessarily representative of a typical week.

Table 1 shows the relationship of the volume received by each association during the period studied to the average for the previous 52 weeks. The receipts of five associations--I, M, N, O, and Q--were above the yearly average of all associations. The other associations--J, K, L, and P--were below the average. The average of the nine associations' receipts during the period visited was 98 percent of the period average for the year. Unit costs of an association with its period volume below average were usually higher than average and one with volume above average usually had lower unit costs during the 2-week period.

TABLE 1.--Relationship of egg receipts during 2-week sample period to the average 2-week receipts for the year, nine associations, 1957-58[1]

Association	Receipts of period in relation to average for year
	Percent
I	99
J	70
K	78
L	96
M	99
N	111
O	115
P	91
Q	122
Average	98
Range:	
Low	70
High	122

[1] The year covered the 52 weeks ending with the last day of the period of the study.

Operations Included

A comparison of total operating costs was inadequate because all firms did not perform the same services or perform them in the same proportion. Therefore, it was necessary to break down costs and labor output by individual steps, operations, or services through the handling or marketing process so they could be made as nearly comparable as possible among associations.

It was essential that the elements making up an operation be the same. Minor differences may be difficult or impossible to eliminate, but similarity should exist to make comparisons meaningful. Relative sameness of an operation narrows it down so that the number of variables is reduced and the comparison of operations made practicable for the purpose of the study.

In this study, handling eggs through the cooperatives was broken down into as many as 12 separate operations. These are: collecting, receiving, candling, cartoning, packing cartoned eggs, coopering cases, stacking eggs in holding room, loading out, delivering, shell treating, shell cleaning, and egg breaking.[3]

[3] The operations of inspecting eggs for the wholesale grades and sizing of eggs are not included in this report as they were in General Report 59, "Cost of Marketing Eggs and Labor Output of Selected Cooperatives, Part I, Northeast," because the North Central cooperatives handled no eggs on a wholesale grade basis and sizing of eggs was not separable from the candling operation.

Table 2 shows the number of operations performed by each of the nine associations studied. None of the associations performed all 12 operations. Six associations performed 10 of the operations, 2 performed 9 operations, and 1 performed only 8 operations. Collecting eggs was done by eight associations; receiving, candling, coopering, stacking, loading out, and delivering, by all nine associations; cartoning and packing cartoned eggs, by seven; shell cleaning, by six; shell treating, by three; and egg breaking, by only one association.

In order to make the costs and labor outputs as comparable as possible among associations studied, it was necessary to determine precisely where each operation began and ended. In case of labor, this was done by including the pertinent labor elements covered in each operation, as listed below.

1. Collecting (hauling eggs to plant):
   - Loading truck with empty cases
   - Driving truck and driver's helper
   - Loading truck at farms
   - Making out producer and route records

2. Receiving (plant labor):
   - Unloading (including time of trucker)
   - Receiving door deliveries
   - Weighing-in cases
   - Moving eggs to receiving room
   - Sorting cases
   - Recording receipts

3. Candling (loose to case):[4]
   - Moving eggs to candlers
   - Removing case covers
   - Obtaining and readying empty cases
   - Putting eggs on sizing machine
   - Packing loose eggs from sizing machine
   - Candling operation
   - Putting eggs in cases
   - Recording candling results
   - Replacing case covers
   - Weighing after candling
   - Removing cases
   - Stamping candled cases

4. Cartoning (candling to cartons):[4]
   - Moving eggs to candlers
   - Removing case covers
   - Obtaining and setting up cartons
   - Putting eggs on or taking off sizing machine or belt
   - Candling operation
   - Putting eggs in cartons
   - Closing cartons
   - Recording candling results
   - Marking, sealing, and labeling cartons
   - Removing cartoned cases
   - Unloading and storing cartons

5. Packing (cartoned eggs):
   - Obtaining and readying empty cases
   - Stamping, labeling, or marking cartoned cases
   - Inserting flats
   - Putting cartons in cases
   - Closing cases
   - Sealing cartoned cases
   - Stacking cartoned cases for removal to holding place

6. Coopering (including storing empty cases):
   - Obtaining shook or used cases
   - Making or setting up new cases
   - Repairing used cases
   - Putting flats and fillers in new cases
   - Putting labels on cases during coopering

[4]Per unit labor cost for candling and for cartoning is based upon the actual case output of an operation rather than case input. For example, if 100 cases, of which 15 per cent were rejects, went to the cartoning operation, the cost and volumes were allocated based on 85 cases cartoned and 15 cases candled and packed loose.

Skid and hydraulic hand truck used to move eggs from farm pickup trucks to egg receiving room.

Candling eggs to sizing machine. Note counters which speed up the egg count at end of each producer's lot.

TABLE 2.--Egg handling operations performed by nine associations, 2-week period, 1957-58[1]

Association	Operation												Total operations performed
	Collecting	Receiving	Candling	Cartoning	Packing cartoned eggs	Coopering	Stacking	Loading out	Delivering	Shell treat	Shell clean	Egg breaking	
I	X	X	X	X	X	X	X	X	X		X		10
J	X	X	X			X	X	X	X	X	X		9
K	X	X	X			X	X	X	X		X		8
L	X	X	X	X	X	X	X	X	X		X		10
M	X	X	X	X	X	X	X	X	X				9
N	X	X	X	X	X	X	X	X	X		X		10
O	X	X	X	X	X	X	X	X	X		X		10
P	X	X	X	X	X	X	X	X	X	X			10
Q		X	X	X	X	X	X	X	X	X		X	10
Total	8	9	9	7	7	9	9	9	9	3	6	1	-

[1] An X mark indicates that an operation was performed.

Removing coopered cases
Stacking coopered cases

7. Stacking and holding (in plant):
   - Stacking (when several high and separate from candler removal)
   - Moving cases to holding place
   - Sorting cases
   - Restacking cases
   - Weighing and labeling cases

8. Loading out:
   - Moving to trucks or railroad cars
   - Loading (including time of truckers when helping)
   - Making out shipping records, bills of lading, and delivery instructions

9. Delivering (hauling to buyers); truck personnel only):
   - Driving truck
   - Unloading eggs
   - Making records of collections

10. Shell treating:
    - Preparing oil
    - Readying empty cases and equipment
    - Moving cases to machine
    - Oiling operation
    - Packing in cases
    - Labeling, marking, and the like
    - Removing filled cases

11. Shell cleaning:
    - Hauling to cleaner
    - Buffing operations
    - Washing operations
    - Removal from cleaning operation

12. Egg breaking:
    - Moving to breaking room
    - Breaking operation
    - Operation of mixer, pump, and the like
    - Filling and covering cans
    - Putting cans in refrigerator
    - Making out breaking records
    - Cleaning equipment and room

Data Collected

During the 2-week period, information was collected concerning (1) direct costs and labor requirements, (2) indirect costs, and (3) related information.

Direct Costs and Labor Requirements

Data collected under "direct costs" pertain to direct labor, packing and processing materials, truck operating and contract hauling, and other direct costs.

As used in this report, direct labor costs and direct labor requirements are costs and requirements incurred for a single operation or part of an operation. They, therefore, can be separated and can be traced directly to that operation or to one or more of its elements. Direct labor costs vary. Costs vary in total amount as the product volume increases or decreases, but on a unit basis they are affected much less than indirect costs by changes in volume.

Labor requirements or outputs a man-hour were determined by dividing the total number of hours required to perform an operation over a period of time by the number of cases handled in the operation during the same period. These outputs are important because they usually reflect labor efficiency more accurately than do dollar-and-cents costs and do not become outdated as soon. Labor requirements are an important factor affecting differences in unit costs among associations.

Costs for direct labor, in addition to wages and salaries for regular and overtime work, included other associated costs, such as Federal

old age benefits, unemployment insurance, workmen's compensation, bonuses, pensions, and hospital insurance. After the labor cost for each employee was determined, his time and wages were charged to the operation or operations in which he worked. When he worked on more than one operation, his wages were distributed on a time basis.

All the costs incurred for materials were determined according to three types of egg packs used. These are: (1) 30-dozen loose or case pack, (2) 30-dozen or equivalent cartoned pack, and (3) liquid egg pack.

The most important materials were case shells, flats and fillers or filler-flats, case labels, gummed tape, cartons, carton seals, oil for shell treating, washing materials, and cans and lids for liquid eggs. In instances where both new and old materials were used, it was necessary to determine the proportions of each in order to calculate the average unit cost.

Cost data for operating association trucks and contract trucking charges were obtained.

Other direct costs incurred were service fees for Federal inspection and grading and royalties on machines for setting up and closing cartons.

Indirect or Overhead Costs

Indirect costs refer to those costs which are incurred for more than one operation or for parts of more than one operation. They therefore cannot be readily separated and are difficult to trace directly to an individual operation or its elements. Most indirect costs are fixed costs and change little in total amount when the volume of product changes. But, on a unit basis, they decrease when the volume increases and increase when volume is less.

When indirect costs were collected and analyzed, they were divided into labor and other.

Indirect Labor Costs.--Indirect labor costs, which include the salaries or wages of the manager, office help, salesmen, fieldmen, janitors, night watchmen, repair and maintenance employees, and plant foreman, were determined for the specific period under study. As such, they represent costs for the same period as direct labor. When the work of some employees was chargeable to both direct and indirect costs, their labor costs were divided accordingly.

Other Indirect Costs.--Indirect expenses, other than indirect labor costs, were obtained from the audit report for the latest fiscal year of each association. These annual data were then calculated on a period basis and the period average applied to current operations. In other words, indirect cost figures, excluding indirect labor, were 1/26 of such costs of the fiscal year preceding the period of study.

This method was used because indirect cost information was not currently available on a short-time basis for the period of study. Also, annual indirect costs, especially in total, were found to vary little from year to year for any individual association. Therefore, a 2-week apportionment of the indirect costs was considered sufficiently accurate and reliable for this analysis.

Indirect costs on a unit basis were calculated by dividing the average period indirect costs by the 2-week average number of cases of eggs received during the 12 months ending with the close of the period of

study (volume for the previous 12 months divided by 26). This study did not apportion these costs to individual operations as it did direct costs. It should be pointed out that a comparison of these unit indirect costs among associations may, because they are not apportioned by operations, not be as meaningful as direct costs by operations. In each operation the number of services rendered and the relative volume of eggs handled may vary widely.

Indirect costs, other than indirect labor, include the following expense items:

Plant:
- Heat, power, and water
- General insurance
- Real estate and personal property taxes
- Maintenance and repair
- Plant supplies (general)
- Depreciation:
  - Buildings
  - Plant equipment
- Miscellaneous

Non-plant:
- Office supplies, stationery, and printing
- Postage
- Telephone and telegraph
- Advertising
- Bad debts
- Interest
- Bank service
- Auditing and legal
- Travel
- Automobile
- Directors' expense
- Annual meeting expense
- Educational expense
- Dues and subscriptions
- Contributions and donations
- Depreciation
  - Furniture and fixtures
  - Automobile
- Miscellaneous

In instances where marketing associations handle farm supplies and other farm products as well as eggs, it is necessary to allocate the proper portion of each indirect expense item to the egg department. The records of most associations provided such allocations to the egg department. But even in such cases, modifications were sometimes found necessary in order to handle indirect individual expense allocations uniformly for all associations.

Other Information

Facts other than cost data were obtained during the period of study. These helped explain costs, factors affecting costs, and labor efficiency.

For the most part, this information included labor rates for regular and overtime work, amount of overtime, quality of eggs candled and cartoned, grading standards used, number and type of jobs performed by candlers, percentage of eggs sized on farms before reaching the plant, types of equipment used, plant and equipment layout, flow of eggs through the plant, length of farm routes, and frequency of farm pick-ups. This information will be used in making the analysis of factors affecting costs and included in the analytical report.

Cost and Output Comparisons

Cost comparisons will now be shown for (1) the total direct and indirect costs of nine north central associations, (2) direct unit costs and

labor output of handling eggs of individual associations by their operations, (3) indirect unit costs by associations, and (4) costs by type of pack.

Total Costs

The total cost of handling eggs through the nine associations for the sample 2-week period appears in table 3. The total cost was subdivided into direct and indirect costs. Direct costs were further divided into labor, materials, truck, and other costs. Indirect costs were divided into labor and other indirect costs.

Total costs for the nine associations for the 2-week period were $85,130.01, or an average of $9,458.88. By associations, the total cost ranged from a high of $16,960.95 to a low of $2,871.79. Direct costs constituted an average of 88 percent of the total; indirect costs, 12 percent. In a similar study made of 16 north central associations in 1950-51, direct costs averaged 82 percent of total costs--indirect costs 18 percent.

Total labor cost, both direct and indirect, accounted for 37 percent of the total cost for the nine associations. This compares with 44 percent for 16 associations in 1950-51.

Materials was the next most important direct cost item--approximately 30 percent of the total cost for the nine associations.

Truck costs constituted more than 24 percent on the average--versus 14 percent for 16 associations in 1950-51. Miscellaneous small direct items and the indirect costs exclusive of

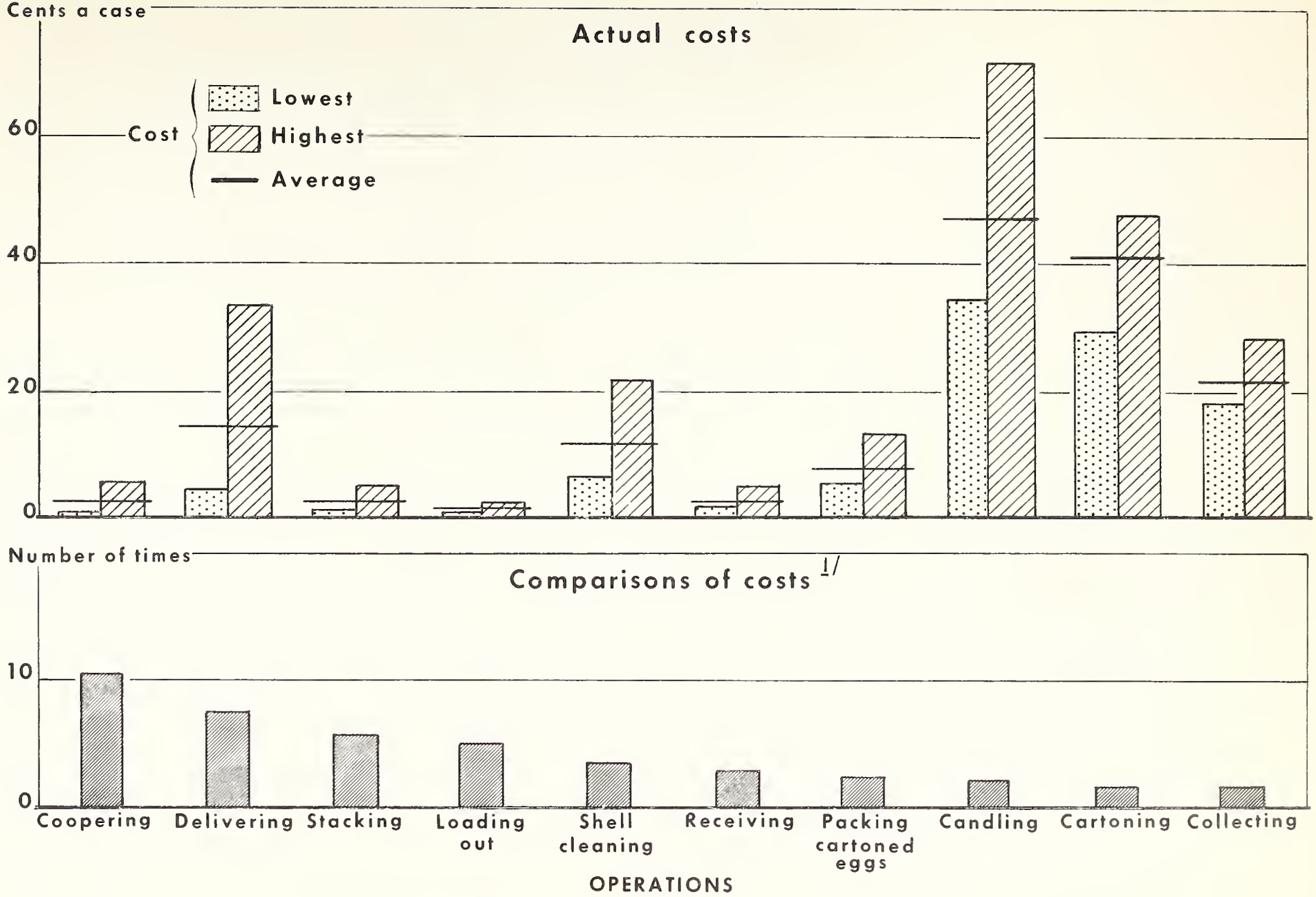
TABLE 3.--Total direct and indirect costs for handling eggs at nine associations, 2-week period, 1957-58

Item	Costs				Percentage
	Total for nine associations	Average for nine associations	Range		Average for nine associations
			Highest	Lowest	
Direct costs:					
Labor	$25,692.40	$2,854.71	$4,430.57	$797.02	30.2
Materials[1]	25,534.94	2,837.20	7,680.32	438.08	30.0
Truck[2]	20,830.66	2,314.52	825.78	1,185.05	24.5
Other[3]	2,846.94	316.33	2,406.30	-	3.3
Total	74,904.94	8,322.76	15,342.97	2,420.15	88.0
Indirect costs:					
Labor	5,866.75	651.86	805.46	198.41	6.9
Other than labor	4,358.32	484.26	813.12	253.23	5.1
Total	10,225.07	1,136.12	1,618.58	451.64	12.0
Grand total	85,130.01	9,458.88	16,961.55	2,871.79	100.0

[1] Materials used for packing loose, cartoned, and liquid eggs and shell cleaning and shell treating.
[2] Includes truck expense of association trucks and charges for contract trucking.
[3] Includes State or Federal inspection fees, rental for cartoning equipment, and sizing equipment for one association.

Figure 1

Cost of direct labor by operations, nine associations, 2-week period, 1957-58



1/ Number of times highest cost is greater than lowest in each individual operation.

indirect labor made up the remaining nine percent of total costs (table 3).

Direct Costs and Labor Output

Direct costs in this report are on a case-unit basis for: (1) direct labor, truck, and labor output by individual plant operations; (2) materials by type of pack; and (3) other direct costs by operations. The cost groups are discussed in this order below.

Labor and Truck Costs and Output by Plant Operations

Average direct labor costs for the nine cooperatives by operations ranged from a low of 1.5 cents for loading out eggs to a high of 94.3 cents a case for egg breaking (table 4 and figure 1).

Average unit costs for labor were relatively high for collecting, egg-breaking, and candling and cartoning. For example, the average costs of these operations, on an individual operation basis, ranged from 22.9 cents for collecting to 94.3 cents for egg-breaking, whereas the lower cost operations of loading out, coopering cases, stacking, receiving, shell treating, packing cartoned eggs, shell cleaning, and delivering ranged from 1.5 to 14.1 cents.

A wide range of labor output existed among the operations. For example, the receiving, coopering, stacking and loading out operations had the largest average output a man-hour--an average for the four of 98.5 cases a man-hour. In contrast, the egg-breaking output was only 2.1 cases; candling, 2.5; and cartoning, 2.9 cases (table 5).

No associations had direct labor costs or labor outputs that were uniformly high or low in all operations. An association may have the highest labor cost or labor output in one operation and the lowest in another as compared with other associations. A comparison of direct labor costs by associations and operations (table 4) indicates the associations with the lowest and highest cost for each operation.

Table 4 also shows the average direct labor cost, range in costs, and the number of times the highest cost is more than the lowest cost for each operation. Association J had the lowest labor cost for shell cleaning eggs, but had the highest labor cost for stacking eggs.

The lowest direct labor cost of 10 operations performed by more than one association was split among 5 associations with Association Q having the lowest cost in 5 operations--in candling, cartoning, packing cartoned eggs, coopering cases, and in delivering. The highest direct labor cost operations were split among 7 of the 9 associations with Association K being highest in cost in three operations--in candling, coopering cases, and shell cleaning. Associations L and Q were not highest in direct labor cost in any operation. Figure 1 emphasizes variations in average costs by operations.

A similar comparison of labor output a man-hour for each operation appears in table 5 and figure 2. As with direct labor cost a case, no association had a consistently low or high output a man-hour for all operations, although associations I and K each had the lowest output in three and four operations, respectively, and association Q had the highest output in three operations and near the highest in another. The lowest outputs were divided among four of the nine associations; the highest among six associations.

TABLE 4.--Cost of direct labor by operations and associations, 2-week period, 1957-58

Association	Collecting	Receiving	Candling	Cartoning	Packing cartoned eggs	Coopering cases	Stacking	Loading out	Delivering	Shell treating	Shell cleaning	Egg breaking	Number of: Lowest costs	Number of: Highest costs
						Cents a case								
I	23.1	4.9	51.3	46.3	8.7	2.1	3.7	1.9	(1)	(2)	7.0	(2)	0	1
J	20.2	2.1	38.6	(2)	(2)	1.4	4.6	2.0	(1)	5.5	6.4	(2)	1	1
K	23.4	2.8	71.7	(2)	(2)	5.3	1.3	.9	(1)	(2)	21.9	(2)	0	3
L	18.1	2.0	40.2	40.2	6.3	2.7	.9	.5	(1)	(2)	7.8	(2)	2	0
M	19.9	2.1	45.2	40.9	13.3	.9	1.8	1.6	4.6	(2)	(2)	(2)	0	1
N	27.4	1.7	47.6	41.1	7.8	2.0	2.0	2.5	33.2	(2)	16.3	(2)	1	2
O	28.5	2.4	45.1	40.7	7.1	1.5	.8	1.0	(1)	(2)	(2)	(2)	1	1
P	22.7	2.4	53.0	47.9	5.6	2.8	1.4	.9	(1)	(3)	(2)	(2)	0	1
Q	(2)	2.3	34.8	29.6	5.5	.5	2.0	2.0	4.4	(3)	(2)	94.3	5	0
Average[4]	22.9	2.5	47.5	41.0	7.8	2.1	2.1	1.5	14.1	5.5	11.9	94.3	-	-
Range														
Low	18.1	1.7	34.8	29.6	5.5	.5	.8	.5	4.4	-	6.4	-	-	-
High	28.5	4.9	71.7	47.9	13.3	5.3	4.6	2.5	33.2	-	21.9	-	-	-
Times highest cost is more than lowest cost	1.6	2.9	2.1	1.6	2.4	10.6	5.7	5.0	7.5	-	3.4	-		

Lowest Highest

[1] Contract hauling.
[2] Operation not performed.
[3] Labor cost negligible.
[4] Unweighted average.

TABLE 5.--Labor output a man-hour by operation and associations, 2-week period, 1957-58

Association	Collecting	Receiving	Candling	Cartoning	Packing cartoned eggs	Coopering cases	Stacking	Loading out	Delivering	Shell treating	Shell cleaning	Egg breaking	Number of: Lowest outputs	Number of: Highest outputs
							Cases							
I	6.0	32.1	2.3	2.5	13.5	60.0	33.9	79.3	(1)	(2)	16.1	(2)	3	1
J	5.7	57.4	2.9	(2)	(2)	56.8	87.0	146.1	(1)	16.5	14.2	(2)	0	0
K	5.1	42.0	1.5	(2)	(2)	22.2	93.6	131.3	(1)	(2)	5.3	(2)	4	0
L	9.0	69.3	2.2	2.2	13.6	46.8	124.8	266.2	(1)	(2)	14.6	(2)	1	2
M	8.9	72.0	2.6	2.9	8.9	146.5	81.4	90.5	(3)	(2)	(2)	(2)	1	0
N	(3)	92.0	2.5	2.9	14.8	61.2	65.8	(3)	(3)	(2)	7.0	(2)	0	1
O	6.8	79.8	2.3	2.6	12.3	61.5	174.7	157.1	(1)	(2)	(2)	(2)	0	1
P	7.2	57.2	2.3	2.5	22.5	47.1	97.6	154.4	(1)	(4)	(2)	(2)	0	1
Q	(2)	81.4	4.0	4.9	22.1	301.1	88.4	141.7	(3)	(4)	(2)	2.1	0	3
Average[5]	7.0	64.8	2.5	2.9	15.4	89.2	94.1	145.8	-	16.5	11.4	-	-	-
Range:														
Low	5.1	32.1	1.5	2.2	8.9	22.2	33.9	79.3	-	-	5.3	-	-	-
High	9.0	92.0	4.0	4.9	22.5	301.1	174.7	266.2	-	-	16.1	-	-	-
Times highest cost is more than lowest cost	1.7	2.9	2.7	2.2	2.5	13.6	5.2	3.4	-	-	3.0	-		

Low High

[1] Contract hauling.
[2] Operation not performed.
[3] Negligible amount of labor involved.
[4] Hours not available.
[5] Unweighted average.

On a functional basis, tables 6 through 19 give figures on direct labor cost and output by operations, from the collection of eggs at the farm to the delivery of eggs to the buyer.

The associations are arrayed in each table according to cases of eggs handled in the operation and grouped into two volume groups, upper and lower, in order to give some indication of the effect, if any, of volume on unit cost and output a man-hour.

Collecting.--The direct labor cost of collecting eggs varied among the eight associations performing the operation from 18.1 cents for association L to 28.5 cents a case for association O. Total volume collected had some effect on unit labor cost as the upper volume group collecting an average of 4,080 cases had a cost of 21 cents a case--nearly 4 cents less than that of the lower volume group averaging only 1,383 cases per association (table 6).

Cases of eggs collected a man-hour varied from 5.1 for association K to 9.0 cases for association L. The upper volume group had an average labor output a man-hour of 7.8 cases--1.8 cases more than did the lower volume group, indicating that increasing labor output is associated with increasing volume (table 6).

A more complete breakdown of collecting costs appears in table 7. Total collecting costs for association trucks, including direct labor, were approximately the same for both the upper and lower volume groups--37.3 and 37.5 cents a case, respectively. Among associations these costs ranged from 30 cents for association J to 45.7 cents a case for association N. The average for eight associations was 37.5 cents. For association trucks, the direct labor cost on the average was 61 percent of the total collecting costs. For the four associations using both their own trucks and contract trucks in collecting eggs, the total collecting cost with association trucks averaged 38.1 cents per case, 3.4 less than the 41.5 cents with contract trucks.

The average volume collected with association trucks was more than the volume with contract trucks during the 2-week period--2,731 and 927 cases, respectively.

The average collecting labor costs obtained from 11 midwestern asso-

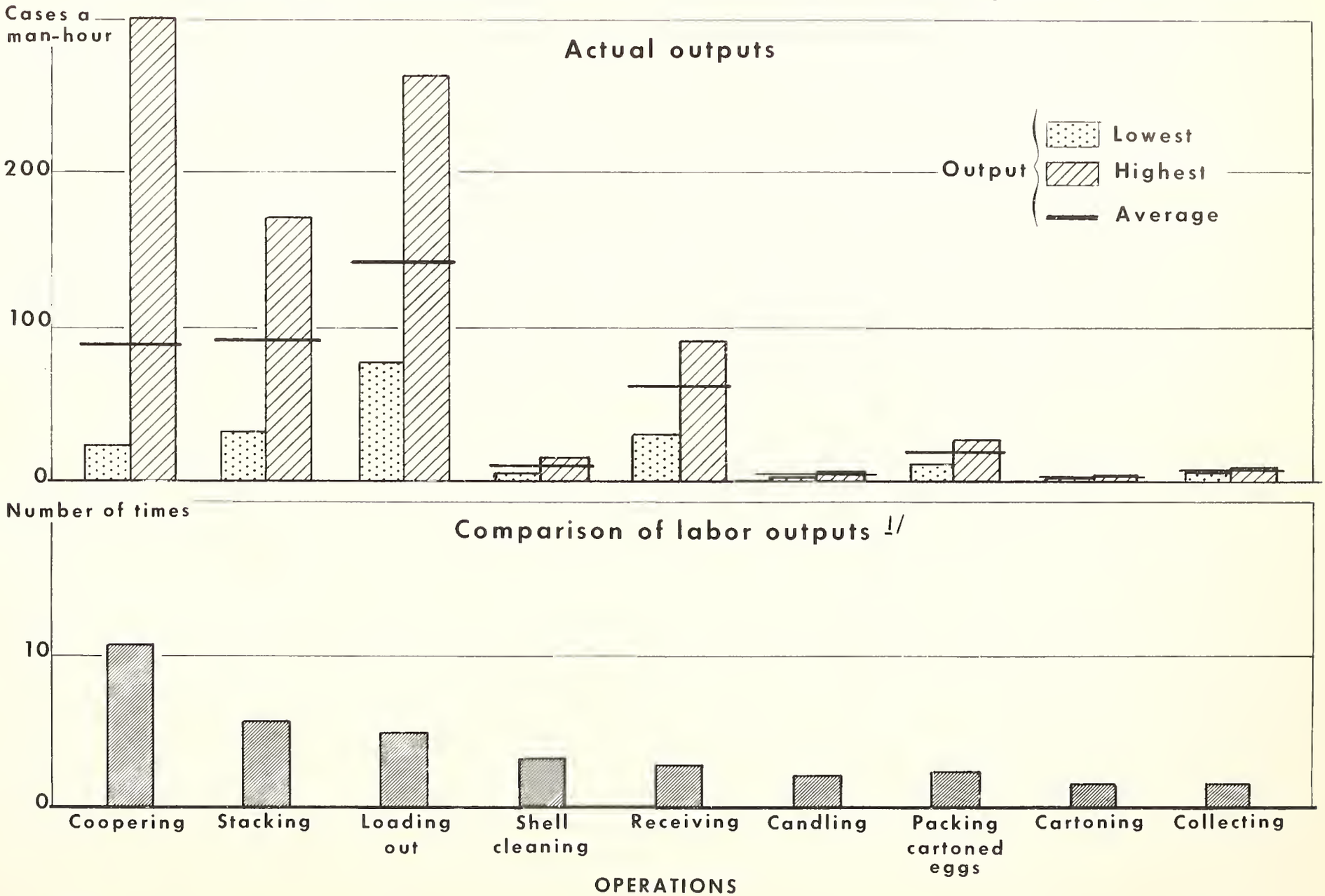
TABLE 6.--Collecting eggs from farms: Average direct labor cost and output a man-hour, eight associations, 2-week period, 1957-58[1]

Group and associations	Cost	Output a man-hour
	Cents a case	*Cases*
Upper volume group:[2]		
I	23.1	6.0
L	18.1	9.0
M	19.9	8.9
P	22.7	7.2
Average 4 associations[3]	21.0	7.8
Lower volume group:[4]		
J	20.2	5.7
K	23.4	5.1
O	28.5	6.8
N[5]	27.4	([6])
Average 4 associations[3]	24.9	[7]5.9
Average 8 associations[3]	22.9	7.0
Range:		
Low	18.1	5.1
High	28.5	9.0

[1] Does not include contract hauling.
[2] Average volume collected was 4,080 cases.
[3] Unweighted average.
[4] Average volume collected was 1,383 cases.
[5] Not included in averages.
[6] Hours not available.
[7] Average three associations.

Figure 2

Labor output by operations, nine associations, 2-week period, 1957-58



1/ Number of times highest output is greater than lowest in each individual operation.

TABLE 7.--Collecting eggs from farms: Average direct costs, eight associations, 2-week period, 1957-58

Group and associations	Association trucks			Contract trucks[1]	Total
	Direct labor	Truck expense	Total		
			Cents a case		
Upper volume group[2]					
I	23.1	15.2	38.4	24.1	[3]35.7
L	18.1	16.4	34.5	-	34.5
M	19.9	23.7	43.6	-	43.6
P	22.7	9.9	32.6	31.9	[3]32.6
Average 4 associations[4]	21.0	16.3	37.3	[5]28.0	36.6
Lower volume group[6]					
J	20.2	9.8	30.0	-	30.0
K	23.4	15.3	38.7	-	38.7
O	28.5	7.2	35.7	50.2	[3]46.4
N	27.4	18.3	45.7	60.0	[3]47.1
Average 4 associations[4]	24.9	12.6	37.5	[5]55.1	40.6
Average 8 associations[4]	22.9	14.6	37.5	41.6	38.6
Range:					
Low	18.1	7.2	30.0	24.1	30.0
High	28.5	23.7	45.7	60.0	47.1

[1] Cost or charge to association or association patrons.
[2] Average total volume collected was 4,127 cases.
[3] Weighted average cost for association and contract trucks.
[4] Unweighted average of vertical columns.
[5] Average of two associations.
[6] Average total volume collected was 2,171 cases.

ciations in 1950-51 were nearly the same as for the 8 associations in the current study--23.2 and 22.9 cents a case, respectively. The average volume collected was considerably less in 1950-51 than in 1957-58. Truck costs were nearly the same in both studies at approximately 15 cents a case.

Output a man-hour averaged more during the 2-week period of the current study--7 cases as compared with 6.1 cases.

Receiving.--Direct receiving labor cost averaged 2.2 cents a case for the upper volume group. This was 0.6 cent less than the average for the lower volume group. (table 8). The average volume received by the upper group was 5,826 cases--more than three times that of the lower group. The cost ranged among nine associations from 1.7 cents for association N to 4.9 cents a case for association I. This wide variation is due partly to the fact that association I used higher priced labor and 2-wheel hand trucks, while at association N the eggs were unloaded directly into the receiving room via roller conveyor. Receiving output a man-hour averaged more than nine cases higher for the upper volume group than for the lower group--70 cases as compared with 60.7 cases. Labor output ranged from 32.1 cases for association I to 92 cases for association N--the associations with the respective

highest and lowest labor cost a man-hour.

Compared with the 1950-51 study, the average receiving labor cost for the current study was slightly higher --2.5 cents compared with 2.1 cents a case. Output a man-hour averaged 64.8 cases in the current study compared with 78.8 cases in 1950-51.

Candling.--This operation covers eggs candled loose into cases. Direct labor costs and eggs candled a man-hour are shown in table 9. Labor is divided between that for direct candling and auxiliary labor. Auxiliary labor is that required to supply eggs to the candlers, to size eggs when separate from candling, to supply materials, and to remove the eggs from the candlers after candling.

The direct labor cost a case for direct candling of eggs averaged approximately 29 cents for both the upper and lower volume group of associations. This cost ranged from 19.4 cents for association M to 42.3 cents for association K. At association M the eggs were candled from cases and placed on the sizing machine feed table, while at association K the eggs were candled from the sizing machine aprons and placed in fillers or on filler flats.

The direct auxiliary candling labor cost ranged from 11.4 cents for association Q to 29.4 cents for association K.

At association M the direct auxiliary candling labor cost 6.4 cents a case more than the direct candling labor cost whereas at the other eight associations, the direct candling labor cost was more than the auxiliary labor. The direct candling labor was less at association M because the candlers only candled directly to the sizing machines. At most of the other associations, the eggs were candled after being sized by machines. Then the candlers also placed the eggs in cartons or filler flats and pushed the cartons and filler flats onto a moving belt or otherwise disposed of the candled eggs.

TABLE 8.--Receiving eggs: Average direct labor cost and output a man-hour, nine associations, 2-week period, 1957-58

Group and associations	Cost	Output a man-hour
	Cents a case	*Cases*
Higher volume group:[1]		
L	2.0	69.3
M	2.1	72.0
P	2.4	57.2
Q	2.3	81.4
Average 4 associations[2]	2.2	70.0
Lower volume group:[3]		
O	2.4	79.8
J	2.1	57.4
K	2.8	42.0
N	1.7	92.0
I	4.9	32.1
Average 5 associations[2]	2.8	60.7
Average 9 associations[2]	2.5	64.8
Range:		
Low	1.7	32.1
High	4.9	92.0

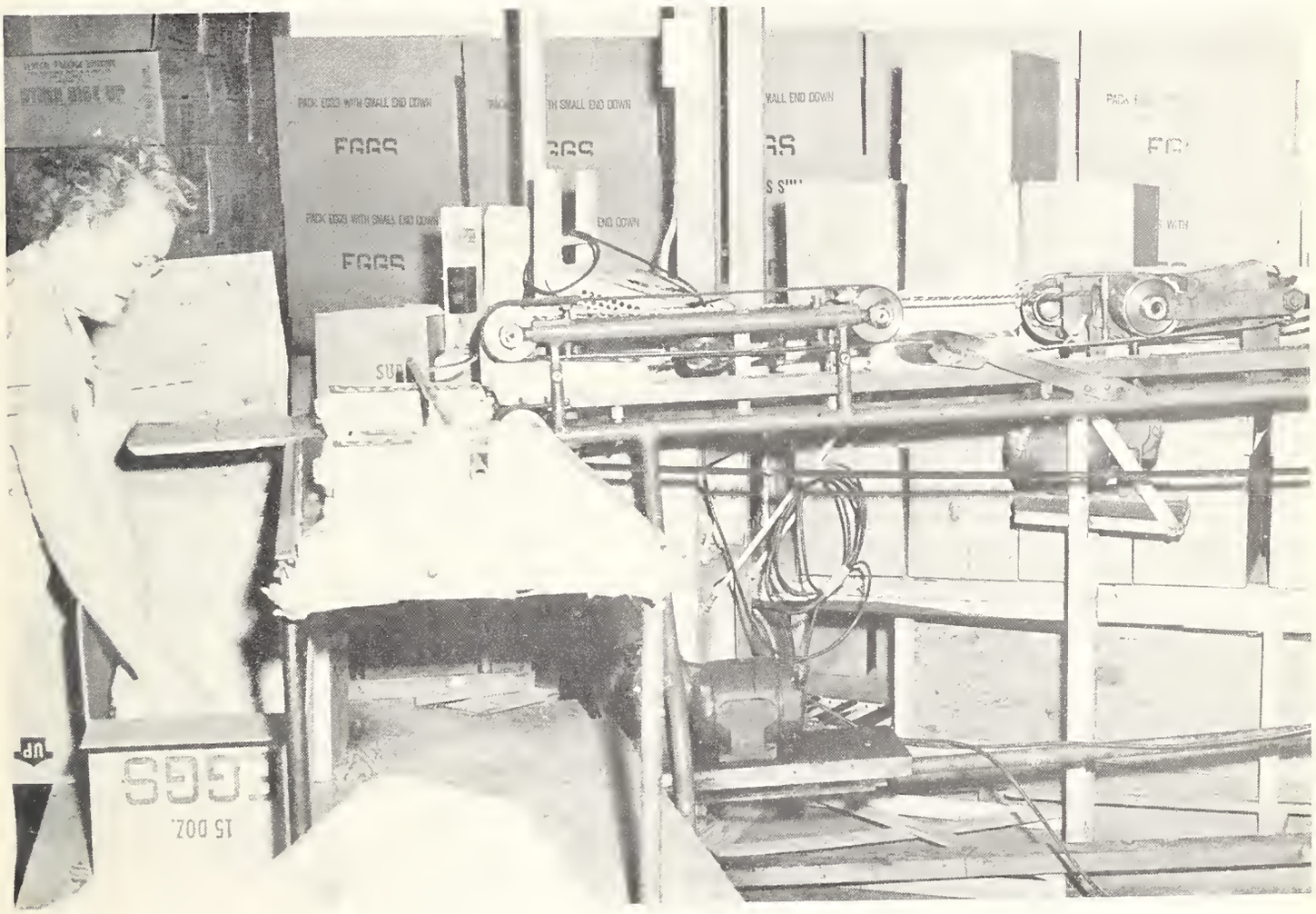
[1] Average volume received was 5,826 cases.
[2] Unweighted average.
[3] Average volume received was 1,892 cases.

The auxiliary labor cost of nine associations averaged 64 percent of the direct candling labor cost. It was 49 percent at the upper volume group and 75 percent at the lower volume group.

Total direct candling labor cost averaged 7.6 cents a case less for the associations in the upper volume group than for those in the lower group--43.3 cents compared with 50.9 cents. The range was from 34.8 cents for association Q to 71.7 cents

Left: On opposite side of bench from sizing machines, eggs are taken from trays and placed in cartons or filler-flats. Cartoned eggs are pushed onto a moving belt and conveyed to packing station.

Below: Packing cartoned eggs from trifold moulded carton closing machine.



a case for association K. The low cost was at an association with a new plant and using the latest type of equipment.

Total candling labor output a man-hour averaged 2.7 cases for the upper volume group of associations compared with 2.4 cases for the lower group and ranged from 1.5 for association K to 4 cases for association Q, the association with the lowest candling labor cost. Direct candling labor output averaged the same for both volume groups of associations, 4.1 cases, but ranged from 2.5 cases for association K to 6.2 for association Q and M. Average auxiliary candling labor output averaged two cases a man-hour more for the upper volume group than for the lower--8.2 compared with 6.2 cases. The range was from 3.6 to 11.5 cases.

The average total candling labor cost of 47.5 cents a case for nine associations is 7.9 cents more than the average for 16 north central associations in 1950-51. Total candling output a man-hour of 2.5 cases compared with 2.3 cases in 1950-51.

Cartoning.--Cartoning labor also has been divided into that for direct candling into cartons and for auxiliary labor. Auxiliary labor, in addition to that mentioned for the candling operation, includes setting up cartons but does not include packing the cartoned eggs into cases or boxes. The data on

TABLE 9.--Candling eggs: Average direct labor cost and output a man-hour, nine associations, 2-week period, 1957-58

Group and associations	Cost			Output per man-hour		
	Direct candling	Auxiliary labor[1]	Total labor	Direct candling	Auxiliary labor[1]	Total labor
	Cents a case			*Cases*		
Upper volume group:[2]						
L	25.3	14.9	40.2	3.5	6.0	2.2
O	30.7	14.4	45.1	3.3	7.7	2.3
P	36.4	16.6	53.0	3.3	7.4	2.3
Q	23.4	11.4	34.8	6.2	11.5	4.0
Average 4 associations[3]	29.0	14.3	43.3	4.1	8.2	2.7
Lower volume group:[4]						
J	25.7	12.9	38.6	3.9	10.4	2.9
M	19.4	25.8	45.2	6.2	4.6	2.6
N	29.0	18.6	47.6	4.0	6.7	2.5
K	42.3	29.4	71.7	2.5	3.6	1.5
I	29.2	22.1	51.3	4.0	5.5	2.3
Average 5 associations[3]	29.1	21.8	50.9	4.1	6.2	2.4
Average 9 associations[3]	29.0	18.5	47.5	4.1	7.0	2.5
Range:						
Low	19.4	11.4	34.8	2.5	3.6	1.5
High	42.3	29.4	71.7	6.2	11.5	4.0

[1] Includes such labor as supplying eggs to candlers, sizing, and removing eggs after candling.
[2] Average volume candled was 3,195 cases.
[3] Unweighted average.
[4] Average volume candled was 1,471 cases.

TABLE 10.--Cartoning eggs: Average direct labor cost and output a man-hour, seven associations 2-week period, 1957-58

Group and association	Cost			Output a man-hour		
	Direct cartoning	Auxiliary labor[1]	Total labor	Actual candling	Auxiliary labor[1]	Total labor
	Cents a case			*Cases*		
Upper volume group:[2]						
N	29.0	12.1	41.1	4.0	11.0	2.9
M	19.3	21.6	40.9	6.2	5.4	2.9
Q	23.4	6.2	29.6	6.2	23.2	4.9
Average 3 associations[3]	23.9	13.3	37.2	5.5	13.2	3.6
Lower volume group:[4]						
L	25.3	14.9	40.2	3.5	6.0	2.2
P	36.4	11.5	47.9	3.3	10.4	2.5
O	30.6	10.1	40.7	3.4	10.2	2.6
I	29.2	17.1	46.3	4.0	6.9	2.5
Average 4 associations[3]	30.4	13.4	43.8	3.6	8.4	2.4
Average 7 associations[3]	27.6	13.4	41.0	4.4	10.4	2.9
Range:						
Low	19.3	6.2	29.6	3.3	5.4	2.2
High	36.4	21.6	47.9	6.2	23.2	4.9

[1] Includes such labor as supplying eggs to candlers, sizing, and setting up cartons.
[2] Average volume cartoned was 4,892 cases.
[3] Unweighted average.
[4] Average volume cartoned was 868 cases.

direct cartoning labor costs and output a man-hour for seven associations are shown in table 10.

The labor cost for direct cartoning averaged 27.6 cents a case for seven associations and ranged from 19.3 cents for association M to 36.4 cents a case for association P. Total cartoning labor averaged 41 cents a case and ranged from 29.6 for association Q to 47.9 for association P--a difference of 18.3 cents a case.

Total cartoning labor output a man-hour averaged 2.9 cases for the seven associations and ranged from 2.2 cases for association L to 4.9 cases for association Q. The total cartoning labor output for association Q is more than its total candling output a man-hour because candling labor includes the work of placing filler-flats of eggs into cases. In contrast, the cartoning operation in this study does not include placing cartons of eggs into cases. If the labor of packing cartoned eggs for association Q were included with its cartoning labor, the total labor output would be the same as total candling labor output--four cases a man-hour.

The average total cost of cartoning eggs for seven associations in this study of 41 cents a case compared with an average cost of 44.7 cents for five north central associations in 1950-51. The total average labor output a man-hour of 2.9 cases was 0.3 case more than the average in 1950-51.

Packing Cartoned Eggs.--Although packing cartoned eggs into cases is essentially a part of the cartoning

TABLE 11.--Packing cartoned eggs: Average direct labor cost and output a man-hour, seven associations, 2-week period, 1957-58

Group and associations	Cost	Output a man-hour
	Cents a case	*Cases*
Upper volume group[1]		
N	7.8	14.8
M	13.3	8.9
Q	5.5	22.1
Average 3 associations[2]	8.9	15.3
Lower volume group[3]		
L	6.3	13.6
P	5.6	22.5
O	7.1	12.3
I	8.7	13.5
Average 4 associations[2]	6.9	15.5
Average 7 associations[2]	7.8	15.4
Range:		
Low	5.5	8.9
High	13.3	22.5

[1] Average volume packed was 2,626 cases.
[2] Unweighted average.
[3] Average volume packed was 868 cases.

operation, direct labor cost and labor output data were obtained separately for this operation (table 11).

The direct labor cost for packing cartoned eggs averaged 8.9 cents for the upper volume group and 6.9 cents a 30-dozen case for the lower volume group. The considerably higher average cost for the larger volume group is due in part to the unusually high cost at Association M--13.3 cents.

The range in cost for the seven associations was from 5.5 cents for Association Q to 13.3 cents for Association M.

Labor output a man-hour averaged nearly the same for both volume groups. The average for the seven associations was 15.4 cases a man-hour. The range in packing labor output was from a low of 8.9 cases for Association M to a high of 22.5 cases for Association P.

Coopering Cases.--Coopering cases is one of the comparatively low cost egg-handling operations. The direct labor cost averaged only 2.1 cents a 30-dozen case for the nine associations and ranged from 0.5 cents for Association Q to 5.3 cents for Association K (table 12). The average labor cost for the upper volume group coopering an average of 8,792 cases during the period had a cost of 1.6 cents a case or 1 cent less than that for the lower group coopering an average of only 2,590 cases.

Cases coopered a man-hour by the upper volume group were nearly

TABLE 12.--Coopering cases: Average direct labor cost and output a man-hour, nine associations, 2-week period, 1957-58

Group and association	Cost	Output a man-hour
	Cents a case	*Cases*
Upper volume group[1]		
I	2.1	60.0
P	2.8	47.1
M	.9	146.5
Q	.5	301.1
Average 4 associations[2]	1.6	138.7
Lower volume group[3]		
J	1.4	56.8
K	5.3	22.2
N	2.0	61.2
L	2.7	46.8
O	1.5	61.5
Average 5 associations[2]	2.6	49.7
Average 9 associations[2]	2.1	89.2
Range:		
Low	.5	22.2
High	5.3	301.1

[1] Average volume coopered was 8,972 cases.
[2] Unweighted average.
[3] Average volume coopered was 2,590 cases.

Closing and sealing cases by hand - machines are now available to perform this work.

The work of loading out eggs is simplified when a power belt conveyor is used to move eggs from holding room to truck.

three times that of the lower volume group of associatons--138.7 cases compared with 49.7 cases. The average was 89.2 cases and the range from 22.2 cases for Association K to 301.1 cases for Association Q. At Association Q, sales cases were partially coopered by the egg packing workers and completed by machine after being filled with eggs. Farm cases were the collapsible type and easily coopered.

The average labor cost of coopering cases of 2.1 cents a case was 2.6 cents less than the average cost for 16 north central associations in 1950-51. Cases coopered a man-hour were nearly four times as great during the current study compared with findings from the 1950-51 study --89.2 and 22.6 cases, respectively.

Stacking.--Another low operating cost is moving eggs to the holding room and stacking them there. For the nine associations studied, direct labor cost averaged 2.1 cents a case and ranged from 0.8 cents for association O to 4.6 cents for association J (table 13). The upper volume group of associations stacked an average of 5,568 30-dozen cases of eggs with an average labor cost of 1.5 cents a case, compared with 2.5 cents a case for the lower volume group stacking only about one-third as many eggs.

Labor output a man-hour averaged 29.5 cases more for the upper volume group than for the lower group. Average labor output for nine associations was 94.1 cases a man-hour. The range was from 33.9 cases for association I to 174.7 cases for association O.

The average direct labor cost of 2.1 cents a case compared with the average of 2.3 cents for 16 north central associations in 1950-51. The average volume of eggs stacked by the 16 associations was 1,173 cases compared with 3,636 by the nine associations. Labor output averaged 94.1 cases a man-hour for the nine associations in the current study compared with 74.1 cases for the 16 associations or 20 cases more a man-hour.

Loading Out.--The direct labor cost of loading out eggs averaged only 1.5 cents a case for eight associations and ranged from 0.5 cents for association L to 2.0 cents a case for associations Q and J (table 14). Association N actually had the highest labor cost, but its cost was not used in the range or average because the number of hours worked in loading out were not available.

Labor output a man-hour ranged

TABLE 13.--Stacking eggs: Average direct labor cost and output a man-hour, nine associations, 2-week period, 1957-58

Group and associations	Cost	Output a man-hour
	Cents a case	*Cases*
Upper volume group[1]		
O	0.8	174.7
P	1.4	97.6
M	1.8	81.4
Q	2.0	88.4
Average 4 associations[2]	1.5	110.5
Lower volume group[3]		
J	4.6	87.0
K	1.3	93.6
I	3.7	33.9
N	2.0	65.8
L	.9	124.8
Average 5 associations[2]	2.5	81.0
Average 9 associations[2]	2.1	94.1
Range:		
Low	.8	33.9
High	4.6	174.7

[1] Average volume stacked was 5,568 cases.
[2] Unweighted average.
[3] Average volume stacked was 2,090 cases.

TABLE 14.--Loading out eggs: Average direct labor cost and output a man-hour, nine associations, 2-week period, 1957-58

Group and associations	Cost	Output a man-hour
	Cents a case	*Cases*
Upper volume group[1]		
O	1.0	157.1
P	.9	154.4
M	1.6	90.5
Q	2.0	141.7
Average 4 associations[2]	1.4	135.9
Lower volume group[3]		
J	2.0	146.1
K	.9	131.3
N[4]	2.5	(5)
I	1.9	79.3
L	.5	266.2
Average 4 associations[2]	1.3	155.7
Average 8 associations[2]	1.4	145.8
Range:		
Low	.5	79.3
High	2.0	266.2

[1] Average volume loaded was 5,847 cases.
[2] Unweighted average.
[3] Average volume loaded was 2,266 cases.
[4] Not included in averages or range.
[5] Hours not available.

from 79.3 cases for association I to 266.2 cases for association L and averaged 145.8 cases for the eight associations.

The average direct labor cost of 1.4 cents a case was 0.2 cent more than the average of 1.2 cents for 16 north central associations in 1950-51. Average labor output a man-hour was 131.3 cases in 1950-51 compared with the average of 145.8 cases for nine associations in 1957-58.

Delivering.--Only three of the north central associations studied delivered eggs to market in association-owned trucks and the number of labor hours required by these for delivery were not available. The direct labor cost a case for the three associations is shown in table 15.

The average direct labor cost for the three associations was 14.1 cents a case and ranged from 4.4 cents for association Q to 33.2 cents for association N. At association N the delivery truck drivers also were salesmen and in addition to a base salary they were paid a commission.

A more complete breakdown of delivering costs is shown in table 16. This table shows costs for direct labor, truck operating, and in total by plants for association trucks, contract hauling, and the grand total for delivering costs.

Total delivering costs with association trucks ranged from 12.0 to 56.6 cents a case and averaged 27.6 cents for three associations.

For seven associations delivering eggs in contract trucks, the total average delivering cost was 86.9 cents a case and ranged from 46.9 cents for association N to $1.12 for association K.

TABLE 15.--Delivering eggs: Average direct labor cost and output a man-hour, three asoociations, 2-week period, 1957-58[1]

Associations	Cost	Labor output
	Cents a case	*Cases*
N	33.2	(2)
M	4.6	(2)
Q	4.4	(2)
Average[3]	14.1	(2)
Range:		
Low	4.4	-
High	33.2	-

[1] Does not include contract hauling.
[2] Not available.
[3] Unweighted average.

TABLE 16.--Delivering eggs to buyers: Average direct costs, nine associations, 2-week period, 1957-58

Group and associations	Association trucks			Contract truck[1]	Total
	Direct labor	Truck expense	Total		
	Cents a case				
Upper volume group[2]					
Q	4.4	9.7	14.1	-	14.1
M	4.6	7.4	12.0	-	12.0
O	-	-	-	88.1	88.1
P	-	-	-	87.5	87.5
L	-	-	-	100.5	100.5
Average[3]	4.5	8.5	13.0	92.0	60.4
Lower volume group[4]					
I	-	-	-	83.9	83.9
N	33.2	23.4	56.6	46.9	[5]52.6
K	-	-	-	111.5	111.5
J	-	-	-	90.1	90.1
Average[3]	33.2	23.4	56.6	83.1	84.5
Average all associations[3]	14.1	13.5	27.6	86.9	71.1
Range:					
Low	4.4	7.4	12.0	46.9	12.0
High	33.2	23.4	56.6	111.5	111.5

[1] Cost or charge to association or association's patrons.
[2] Average volume delivered was 4,807 cases.
[3] Unweighted average of vertical columns.
[4] Average volume delivered was 1,974 cases.
[5] Weighted average cost of association truck expense and of contract hauling.

Total delivering costs a case in association-owned and hired trucks are not comparable because most of the hired trucks delivered eggs to more distant markets than did the association trucks.

Shell Treating.--Only three of the nine associations included in the study shell treated eggs with oil during the period of study. Of these, two oiled the eggs in connection with the candling operation and as a result labor requirements were almost negligible.

The association which shell treats on a separate machine had a direct labor cost of 5.5 cents a case and a labor output a man-hour of 16.5 cases.

Shell Cleaning.--The shell cleaning operation was performed by five associations. Table 17 shows the direct labor cost a case and labor output.

The direct labor cost for the upper volume group averaged 7.4 cents a case as compared with 14.9 cents for the lower volume group. The volume of eggs cleaned by the upper volume group averaged 2,034 cases and 301 cases for the lower group. The range in labor cost was from 6.4 cents for association J to 21.9 cents a case for association K and averaged 11.9 cents for the five associations.

Labor output a man-hour averaged

15.3 cases for the upper volume group but only 8.8 cases for the lower group. The range was from 5.3 cases for association K with the highest labor cost to 16.1 cases for association I with next to the lowest labor cost a case. The average was 11.4 cases a man-hour.

The average direct labor cost of 11.9 cents a case for the five associations in the current study was approximately half the labor cost of 23.9 cents a case for two north central associations in a similar study made in 1950-51. Labor output averaged 11.4 cases an hour compared with only 4.2 cases in 1950-51.

Egg Breaking.--Only one of the nine associations studied had an egg breaking operation. The direct labor cost was 94.3 cents for a 30-dozen case. Labor output a man-hour was 2.1 cases.

TABLE 17.--Shell cleaning eggs: Average direct labor cost and output a man-hour, five associations, 2-week period, 1957-58

Group and associations	Cost	Output a man-hour
	Cents a case	*Cases*
Upper volume group[1]		
I	7.0	16.1
L	7.8	14.6
Average 2 associations[2]	7.4	15.3
Lower volume group[3]		
K	21.9	5.3
N	16.3	7.0
J	6.4	14.2
Average 3 associations[2]	14.9	8.8
Average 5 associations[2]	11.9	11.4
Range:		
Low	6.4	5.3
High	21.9	16.1

[1] Average volume cleaned was 2,034 cases.
[2] Unweighted average.
[3] Average volume cleaned was 301 cases.

Materials Used

Table 18 shows the cost of materials used for the loose and cartoned pack, shell treating, shell cleaning, egg breaking, and collecting eggs.

Loose Pack.--The cost of materials used in the loose pack ranged from 39.2 cents for association J to 70 cents a case for association I and averaged 52.5 cents. The materials consisted largely of cases and flats and fillers. The main reason for the wide variation in materials cost among associations for the loose pack was that a smaller proportion of the materials was reused by some associations than others.

Cartoned Pack.--Cost of materials in the cartoned pack ranged from 86.2 cents for association N to 127.5 cents a 30-dozen case for association I and averaged 101.8 cents for five associations or 49.3 cents more than the average cost of materials for the loose pack. Materials in the cartoned pack include egg cartons instead of flats and fillers or filler-flats as in the loose pack.

Shell Treating.--The cost of oil for shell treating eggs ranged from one to two cents a 30-dozen case and averaged 1.4 cents for three associations. Variations among associations in cost of oil a case may be caused by differences in the price of oil per gallon and the quantity used a case of eggs.

Shell Cleaning.--The cost of materials used in cleaning eggs ranged from 0.6 cent a case for association

N to 1 cent for association K. The average for four associations was 0.8 cent a case.

Egg Breaking.--Only one of the nine associations studied conducted an egg breaking operation. Containers for the liquid eggs cost this association 41.8 cents a 30-dozen case of shell eggs. A comparatively small volume was broken out--192 cases during the 2-week period.

Collecting.--Four of the nine associations used special cases for collecting eggs from producers. These cases are used over and over until worn out. The cases are made of heavy cardboard and have a low rate of replacement resulting in a comparatively low cost a 30-dozen case of eggs collected.

The cost ranged from 3.9 cents a case for association O to 16.3 cents for association I. The average cost for the four associations was 8.1 cents a case.

Other Direct Costs

In addition to direct labor and truck costs, there are three other direct costs: replacement cost of eggs damaged or of unsatisfactory quality, service fees for Federal or State inspection, and royalty[5] on machines for setting up and closing cartons.

Determining the cost of replacing eggs unfit for the candling and cartoning packs was not feasible. Replacement costs varied widely from association to association and chiefly depended upon egg quality standards, sales outlets, relative prices, and association policies.

[5] Charge by the manufacturer for use of equipment. The charge usually varies with the volume cartoned during a given period.

TABLE 18.--Materials used: Total cost for loose and cartoned packed eggs, shell treating, shell cleaning, egg breaking, and collecting, nine associations, 2-week period, 1957-58

Association	Loose pack	Cartoned pack	Shell treating	Shell cleaning	Egg breaking	Collecting
			Cents a case[1]			
I	70.0	127.5	-	[2] 0.1	-	16.3
J	39.2	-	1.1	.9	-	-
K	55.0	-	-	1.0	-	-
L	54.1	[3] 10.8	-	.8	-	-
M	50.9	111.3	-	-	-	4.9
N	58.2	86.2	-	.6	-	-
O	49.6	91.9	-	-	-	3.9
P	51.0	[3] 40.1	2.0	-	-	-
Q	44.8	92.2	1.0	-	41.8	7.4
Average[4]	52.5	101.8	1.4	.8	41.8	8.1
Range:						
Low	39.2	86.2	1.0	.6	-	3.9
High	70.0	127.5	2.0	1.0	-	16.3

[1] Materials cost calculated on basis of 30 dozen eggs per case.
[2] Buffing eggs before putting them into cartons or cases--not included in average or range.
[3] Does not include cartons furnished by buyer of eggs--figures not included in average or range.
[4] Unweighted average.

TABLE 19.--Cost of inspection fee and royalty for cartoning equipment and eggs handled by specified operations, seven associations, 2-week period, 1957-58

Association	Inspecting	Cartoning	Total	Eggs handled	
		Royalty-cartoning equipment		Candled	Cartoned
	Cents a case			*Cases*	
I	0.9	-	0.9	1,957	1,199
K	1.2	-	1.2	1,451	-
L	.8	-	.8	2,763	326
M	.8	0.3	1.1	1,419	3,544
N	.8	1.7	2.5	1,438	1,424
P	.8	0.9	1.7	3,450	775
Q	.8	[1]20.0	[1]20.8	3,793	5,537
Average[2]	.9	[1]5.7	4.1	2,324	2,134
Range:					
Low	.8	.3	.8	1,419	326
High	1.2	[1]20.0	[1]20.8	3,793	5,537

[1] Includes grading equipment.
[2] Unweighted average.

Direct costs for Federal or State inspection and royalties appear in table 19. Inspection fees averaged 0.9 cent a case for candling and 0.8 cent for cartoning with little variation among associations.

For three associations that had separate costs for royalties paid for use of carton setup and closing equipment, the cost ranged from 0.3 to 1.7 cents a 30-dozen case.

Total Direct Costs

In order to determine total direct costs by operations, it is necessary to add, whenever pertinent, the labor, materials used, truck, and other direct costs. A summary table (table 20) combines direct labor cost from table 4, materials costs from table 18, truck costs from tables 7 and 16, and other direct costs from table 19.

To illustrate, the average direct labor cost for the collecting operation was 22.9 cents a case, 8.1 cents for packing materials, and truck operating costs of 14.6 cents, making a total average direct cost of 45.6 cents a case for this operation. In the receiving operation, labor constituted the only direct cost, averaging 2.5 cents a case. On the other hand, in the cartoning operation there were direct costs for labor, materials, Federal or State inspection, and royalty on cartoning equipment. These costs averaged 147.4 cents a case (table 20).

Indirect Costs

Total indirect costs do not fluctuate much with total volume of eggs received. However, unit indirect costs fluctuate considerably with changes in volume. Since it was not feasible to visit all associations during the same period of their

seasonal volume cycles, average receipts for 2 weeks during the year rather than total receipts during the 2-week period studied were used to compute indirect costs per case. By doing this, unit indirect costs were made more comparable among associations than by using a receipts period that might be high or low in the volume cycle.

Based on the average number of cases received during an average 2-week period, indirect costs averaged 31 cents a case (table 21). These costs varied from 18.6 cents for association L to 52.2 cents for association N.

Plant and Non-Plant

Table 21 shows a detailed analysis of indirect costs. They are classified first into plant and non-plant costs. Plant costs are further divided into salaries, expenses other than salaries, and depreciation. Under non-plant costs salaries are divided into managers' salaries and other salaries. Such an analysis facilitates the comparison of certain groups of indirect expenses and helps explain variations in costs. These data are shown percentage-wise in table 22.

Total indirect costs for the upper volume group of associations were 28.2 cents a case, or 6.3 cents less than the 34.5 cents for the lower volume group. The average for nine associations was 31 cents a case, or approximately 1 cent a dozen. The range was from 18.6 cents for association L to 52.2 cents for association N. Both associations were dairy cooperatives. The average total indirect plant cost for the nine associations was 13.1 cents a case compared with the average total indirect non-plant cost of 17.9 cents.

Indirect plant costs averaged 42.4 percent of total indirect costs and indirect non-plant costs 57.6 of the total. In a cost study made of 16 north central associations in 1950-

TABLE 20.--Average total direct costs of operations, nine associations, 2-week period, 1957-58

Operation	Labor	Materials	Truck[1]	Other	Total
			Cents a case		
Collecting	22.9	8.1	14.6	-	45.6
Receiving	2.5	-	-	-	2.5
Candling	47.5	52.5	-	[2] 0.9	100.9
Cartoning	41.0	101.8	-	[3] 4.6	147.4
Packing cartoned eggs	7.8	-	-	-	7.8
Coopering cases	2.1	-	-	-	2.1
Stacking	2.1	-	-	-	2.1
Loading out	1.5	-	-	-	1.5
Delivering	14.1	-	13.5	-	27.6
Shell treating	5.5	1.4	-	-	6.9
Shell cleaning	11.9	.8	-	-	12.7
Egg breaking	94.3	41.8	-	-	136.1

[1] Represents truck operating expense of association trucks. Cost of contract trucks not included.
[2] Inspection fees.
[3] Inspection fees and royalties on cartoning equipment.

TABLE 21.--Indirect costs: Plant, non-plant, and total indirect costs a case of eggs received,[1] nine associations, 2-week period, 1957-58

Group and association	Indirect plant costs				Indirect non-plant costs					Total indirect costs
	Salaries[2]	Other[3]	Depreciation[4]	Total	Manager's salary	Other salaries[5]	Other[6]	Depreciation[7]	Total	
					Cents a case					
Upper volume group:[8]										
Q	5.3	3.0	2.4	10.7	1.4	3.5	4.7	0.2	9.8	20.5
P	4.8	2.7	5.0	12.5	2.7	9.2	1.5	-	13.4	25.9
M	7.5	5.8	1.0	14.3	5.1	7.9	7.7	1.1	21.8	36.1
L	2.6	3.6	.6	6.8	3.3	4.7	3.7	.1	11.8	18.6
O	5.3	10.0	1.4	16.7	2.5	16.0	4.1	.5	23.1	39.8
Average[9]	5.1	5.0	2.1	12.2	3.0	8.3	4.3	.4	16.0	28.2
Lower volume group:[10]										
I	8.3	7.4	.9	16.6	4.7	7.9	7.0	.1	19.7	36.3
N	13.0	6.8	1.2	21.0	3.1	16.6	10.1	1.4	31.2	52.2
K	.9	4.9	.8	6.6	3.2	6.4	3.4	.1	13.1	19.7
J	2.1	10.2	.5	12.8	7.4	3.7	5.8	.2	17.1	29.9
Average[9]	6.1	7.3	.8	14.2	4.6	8.6	6.6	.5	20.3	34.5
Average all associations[9]	5.5	6.1	1.5	13.1	3.7	8.4	5.4	.4	17.9	31.0
Range:										
Low	.9	2.7	.5	6.6	1.4	3.5	1.5	.1	9.8	18.6
High	13.0	10.2	5.0	21.0	7.4	16.6	10.1	1.4	31.2	52.2

[1] Receipts for 12 months ending with period of study divided by 26.

[2] Includes association wages or salaries for plant supervision, janitor and watchman, and maintenance and repair labor.

[3] Includes expense for heat, utilities, general insurance, taxes (real estate and personal property), maintenance and repair, plant supplies, and miscellaneous.

[4] Includes depreciation of buildings and plant machinery and equipment.

[5] Includes clerical, fieldmen, and salesmen's salaries.

[6] Includes such non-plant expenses as telephone and telegraph, advertising, auditing, directors' expense, annual meetings, and the like, except depreciation.

[7] Includes depreciation on office furniture and fixtures.

[8] Average volume received was 5,136 cases.

[9] Unweighted average.

[10] Average volume received was 2,249 cases.

TABLE 22.--Indirect costs: Percentage distribution of plant, non-plant, and total indirect costs a case of eggs received,[1] nine associations, 2-week period, 1957-58

Group and association	Indirect plant costs				Indirect non-plant costs					Total indirect costs
	Salaries[2]	Other[3]	Depreciation[4]	Total	Manager's salary	Other salaries[5]	Other[6]	Depreciation[7]	Total	
					Percent					
Upper volume group:[8]										
Q	26.2	14.5	11.7	52.4	6.7	16.9	22.9	1.1	47.6	100.0
P	18.4	10.5	19.4	48.3	10.3	35.6	5.8	-	51.7	100.0
M	20.8	16.1	2.7	39.6	14.0	21.9	21.3	3.2	60.4	100.0
L	13.8	19.3	3.5	36.6	17.9	25.5	19.7	.3	63.4	100.0
O	13.4	25.2	3.4	42.0	6.2	40.2	10.3	1.3	58.0	100.0
Average[9]	18.5	17.1	8.2	43.8	11.0	28.0	16.0	1.2	56.2	100.0
Lower volume group:[10]										
I	23.0	20.2	2.6	45.8	13.0	21.7	19.2	.3	54.2	100.0
N	24.9	13.0	2.3	40.2	5.9	31.8	19.4	2.7	59.8	100.0
K	4.6	24.7	4.3	33.6	16.3	32.5	17.2	.4	66.4	100.0
J	6.9	34.1	1.9	42.9	24.7	12.4	19.5	.5	57.1	100.0
Average[9]	14.8	23.0	2.8	40.6	15.0	24.6	18.8	1.0	59.4	100.0
Average all associations[9]	16.9	19.7	5.8	42.4	12.8	26.5	17.2	1.1	57.6	100.0
Range:										
Low	4.6	10.5	1.9	33.6	5.9	12.4	5.8	.3	47.6	
High	26.2	34.1	19.4	52.4	24.7	40.2	22.9	3.2	66.4	

[1] Receipts for 12 months ending with period of study divided by 26.

[2] Includes association wages or salaries for plant supervision, janitor and watchman, and maintenance and repair labor.

[3] Includes expense for heat, utilities, general insurance, taxes (real estate and personal property), maintenance and repair, plant supplies, and miscellaneous.

[4] Includes depreciation of buildings and plant machinery and equipment.

[5] Includes clerical, fieldmen, and salesmen's salaries.

[6] Includes such non-plant expenses as telephone and telegraph, advertising, auditing, directors' expense, annual meetings, and the like, except depreciation.

[7] Includes depreciation on office furniture and fixtures.

[8] Average volume received was 5,136 cases.

[9] Unweighted average.

[10] Average volume received was 2,249 cases.

51, indirect plants costs constituted approximately 32 percent of total indirect costs and indirect non-plant costs 68 percent.

Costs by Type of Pack

Direct unit costs given thus far in the report have been shown by individual operations. Comparable total overall costs, both direct and indirect, can be determined by combining costs incurred in the specific types of pack of eggs handled by an association when the labor, materials, truck, and other costs are known.

All associations packed one or more of three packs of eggs: (1) consumer grade loose, in cases; (2) consumer grade, cartoned in cases; and (3) liquid, in cans.

Costs by operations for the three packs of eggs by associations and the average of associations concerned appear in tables 23 to 25. Costs for the liquid egg pack appear in table 23; consumer grade, loose pack, in table 24; and consumer grade, cartoned, in table 25. Total costs are shown by case and by dozen.

For purposes of comparison, the average total cost and the number of cooperatives that prepared each pack are as follows:

Type of pack	Number of associations	Average cost[1]	
		Case	Dozen
			Cents
Consumer grade, loose	9	$2.65	8.8
Consumer grade, cartoned	7	3.03	10.1
Liquid	1	1.59	5.3

[1]The cost to replace eggs not suitable for use in each pack is not included in these costs, but must be considered when these data are used to determine necessary mark-ups.

Direct costs are made up of direct labor, packing materials, truck expenses, and other costs such as rental of candling and cartoning equipment.

To find the total cost of each pack, the indirect costs were added to the direct costs although not allocated to separate egg-handling operations. In the data presented, indirect costs have been allocated proportionately to each type of pack. The allocation

TABLE 23.--Total cost of liquid pack of eggs, one association, 2-week period, 1957-58

Cost and operation	Cost a case
Direct costs:	
Direct labor:[1]	*Cents*
Collecting	(2)
Receiving	2.3
Egg breaking	94.3
Coopering cases	.5
Total direct labor	97.1
Packing materials	41.8
Truck expense:[1]	
Collecting	(2)
Total direct cost	138.9
Indirect costs:	
Plant	10.7
Non-plant	9.8
Total indirect costs	20.5
Total cost:	
Per case	159.4
Per dozen	5.3

[1]No attempt was made to determine labor costs chargeable to the liquid egg pack for candling, stacking, loading out, delivering, or for delivery truck operating expense.

[2]Operation not performed.

TABLE 24.--Total cost for consumer grade, loose case-packed eggs, by operations and total, nine associations, 2-week period, 1957-58

Costs and operations	Associations									
	I	J	K	L	M	N	O	P	Q	Average[1]
					Cents a case					
Direct costs:										
Direct labor:										
Collecting	[2]19.9	20.2	23.4	18.1	19.9	[2]24.6	[2]27.9	[2]21.9	(3)	22.0
Receiving	4.9	2.1	2.8	2.0	2.1	1.7	2.4	2.4	2.3	2.5
Candling:										
Direct candling	29.2	25.7	42.3	25.3	19.4	29.0	30.7	36.4	23.4	29.0
Auxiliary labor	22.1	12.9	29.4	14.9	25.8	18.6	14.4	16.6	11.4	18.5
Coopering cases	2.1	1.4	5.3	2.7	.9	2.0	1.5	2.8	.5	2.1
Stacking	3.7	4.6	1.3	.9	1.8	2.0	.8	1.4	2.0	2.1
Loading out	1.9	2.0	.9	.5	1.6	2.5	1.0	.9	1.2	1.4
Delivering	(4)	(4)	(4)	(4)	4.6	[2]17.3	(4)	(4)	4.4	8.8
Shell treating	(3)	[5]4.4	(3)	(3)	(3)	(3)	(3)	(6)	(6)	4.4
Shell cleaning	7.0	[5]1.3	[5]6.2	[5]2.3	(3)	[5]1.6	(3)	(3)	(3)	3.7
Total direct labor	90.8	74.6	111.6	66.7	76.1	99.3	78.7	82.4	45.2	94.5
Packing materials	74.0	40.3	55.3	54.3	50.9	58.3	49.6	52.1	45.7	53.4
Truck expense:										
Collecting	[7]15.8	9.8	15.3	16.4	23.7	[7]22.5	[7]18.5	[7]10.7	3	16.6
Delivering	[8]83.9	[8]90.1	[8]111.5	[8]100.5	7.4	[7]29.7	[8]88.1	59.8	9.7	64.5
Other	.9	-	-	.2	1.1	2.5	-	1.7	[9]25.0	5.2
Total direct cost	265.4	214.8	293.7	238.1	159.2	212.3	234.9	206.7	125.6	234.2
Indirect costs:										
Plant	16.6	12.8	6.6	6.8	14.3	21.0	16.7	12.5	10.7	13.1
Non-plant	19.7	17.1	13.1	11.8	21.8	31.2	23.1	13.4	9.8	17.9
Total indirect cost	36.3	29.9	19.7	18.6	36.1	52.2	39.8	25.9	20.5	31.0
Total cost:										
A case	301.7	244.7	313.4	256.7	195.3	264.5	274.7	232.6	[10]146.1	265.2
A dozen	10.1	8.2	10.4	8.6	6.5	8.8	9.2	7.8	[10]4.9	8.8

[1] Unweighted average.
[2] Direct labor cost divided by total volume collected or delivered.
[3] Operation not performed.
[4] Contract hauling.
[5] Direct labor cost divided by total volume candled and cartoned.
[6] Labor cost negligible.
[7] Weighted average cost of association truck expense and cost of contract truck hauling. See tables 6 and 15 for actual collecting and delivering costs by contract truckers.
[8] Cost of contract truck hauling.
[9] Includes grading and shell treating equipment.
[10] Does not include cost of collecting eggs.

TABLE 25.--Total cost for consumer grade, cartoned case-packed eggs, seven associations, 2-week period, 1957-58

Cost and operations	Associations							
	I	L	M	N	O	P	Q	Average[1]
				Cents a case				
Direct costs:								
Direct labor:								
Collecting	[2]19.9	18.1	19.9	[2]24.6	[2]27.9	[2]21.9	([3])	22.1
Receiving	4.9	2.0	2.1	1.7	2.4	2.4	2.3	2.5
Cartoning:								
Direct candling	29.2	25.3	19.3	29.0	30.6	36.4	23.4	27.6
Auxiliary labor	17.1	14.9	21.6	12.1	10.1	11.5	6.2	13.4
Packing cartoned eggs	8.7	6.3	13.3	7.8	7.1	5.6	5.5	7.8
Coopering cases	2.1	2.7	.9	2.0	1.5	2.8	.5	1.8
Stacking	3.7	.9	1.8	2.0	.8	1.4	2.0	1.8
Loading out	1.9	.5	1.6	2.5	1.0	.9	1.2	1.4
Delivering	([4])	([4])	4.6	17.3	([4])	([4])	4.4	8.8
Shell treating	([3])	([3])	([3])	([3])	([3])	([5])	([5])	-
Shell cleaning	7.0	[6]2.3	([3])	[6]1.6	([3])	([3])	([3])	3.6
Total direct cost	94.5	73.0	85.1	100.6	81.4	82.9	45.5	90.8
Packing materials	127.5	[7]10.8	111.3	86.2	91.9	[7]40.1	92.2	101.8
Truck expense:								
Collecting	[8]15.8	16.4	23.7	[8]22.5	[8]18.5	[8]10.7	([3])	17.9
Delivering	[9]83.9	[9]100.5	7.4	[8]29.7	[9]88.1	[9]59.8	9.7	54.2
Other	.9	.2	1.1	2.5	-	1.7	[10]25.0	5.2
Total direct cost	322.6	200.9	228.6	241.5	279.9	195.2	172.4	269.9
Indirect costs:								
Plant	16.6	6.8	14.3	21.0	16.7	12.5	10.7	14.1
Non-plant	19.7	11.8	21.8	31.2	23.1	13.4	9.8	18.7
Total indirect cost	36.3	18.6	36.1	52.2	39.8	25.9	20.5	32.8
Total cost:								
A case	358.9	[7]219.5	264.7	293.7	319.7	[7]221.1	[11]192.9	302.7
A dozen	12.0	[7]7.3	8.8	9.8	10.7	[7]7.4	[11]6.4	10.1

[1] Unweighted average.
[2] Direct labor cost divided by total volume collected or delivered.
[3] Operation not performed.
[4] Contract hauling.
[5] Labor cost negligible.
[6] Direct labor cost divided by total volume candled and cartoned.
[7] Does not include cost of cartons furnished by buyers--cost not included in average.
[8] Weighted average cost of association trucks and cost of contract truck hauling.
[9] Cost of contract truck hauling.
[10] Includes grading and shell treating.
[11] Does not include collecting costs.

could be made by other methods: In the same ratio that total direct labor cost for each pack is of total direct labor cost; in the same ratio as total direct costs for each pack is of total direct costs; or in the ratio of number of labor hours in each pack to total number of labor hours.

Indirect costs were allocated proportionally to each pack in this study because of simplicity of computation. Allocation by other methods mentioned above would increase indirect costs somewhat for the consumer grade loose and cartoned packs and decrease them for the wholesale grade loose pack for the associations in this study.

The following tabulation shows the average and range of total costs per dozen by type of pack:

Cost	Type of pack		
	Consumer grade, loose	Consumer grade, cartoned	Liquid
	Cents a dozen		
Average	8.8	10.1	5.3
Range:			
Low	6.5	[1]7.3	-
High	10.4	12.0	-

[1] Does not include cost of cartons furnished by egg buyers.

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